National Institute of Environmental Health Sciences

Influence of origin, harvesting time and weather conditions on content of inositols and methylinositols in sea buckthorn (Hippophae rhamnoides) berries

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Abstract:

Inositols and methylinositols play an important role in human physiology. Inositols and methylinositols in berries of three subspecies of sea buckthorn (Hippophae rhamnoides) were analysed using gas chromatography combined with a flame ionisation detector and mass spectrometry. The wild Chinese berries (H. rhamnoides ssp. sinensis) contained higher levels of l-quebrachitol (1l-2-O-methyl-chiro-inositol) and methyl-myo-inositol (average 615 and 58 mg/100 ml juice, respectively) than the Finnish (H. rhamnoides ssp. rhamnoides, 276 and 11 mg/100 ml juice, respectively) and the Russian (H. rhamnoides ssp. mongolica, 228 and 16 mg/100 ml juice, respectively) berries ($P < 0.001$). The content of myo-inositol was higher in the Chinese and the Russian berries than in the Finnish berries (26 and 20 mg/100 ml juice vs. 8 mg/100 ml juice, $P < 0.001$). In the Chinese berries, the contents of methyl-myo-inositol and l-quebrachitol increased, whereas that of myo-inositol decreased from late September to late November. The content of the l-quebrachitol in the Chinese berries correlated negatively with the air temperature and the number of frost-free days, suggesting a possible role of the compound in the cold resistance of sea buckthorn.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Food/Water Security, Precipitation, Temperature

Food/Water Security: Agricultural Productivity, Nutritional Quality

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Impact: ☑

specification of health effect or disease related to climate change exposure

General Health Impact

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified